

CLAIMS:

1. A method of machining a workpiece with a router bit comprising:
providing a workpiece;
providing a router having a router motor and a router bit rotated by the
5 router motor;
providing a surface in contact with the workpiece;
causing relative translational movement between the workpiece and
the router bit so as to effect a cutting action on the workpiece by the router bit as the
bit rotates so as to cause waste material to be removed from the workpiece;
10 the surface being arranged such that the relative movement between
the router bit and the workpiece also causes relative sliding movement between the
surface and the workpiece while the surface remains in contact with the workpiece;
providing a suction duct having a suction opening at the surface with
the suction duct extending from the surface to a side of the surface away from the
15 workpiece;
providing the suction opening at a location spaced from the bit so that
the suction opening is separated from the bit;
connecting a suction duct to a source of suction to draw air and the
waste material through the suction opening;
20 and arranging the workpiece and the surface so as to define a
passage for the waste material from the bit to the suction opening.
2. The method according to Claim 1 wherein the surface forms the
work surface of a router table, wherein the router is supported at the table surface

such that the router has a router bit driven by a router motor about a bit axis which is at right angles to the table surface and such that the router bit projects through a router bit opening in the table surface and wherein the suction opening extends from the work surface to an opposed side of the table.

5 3. The method according to Claim 2 wherein the suction opening is located in the table surface.

 4. The method according to Claim 2 wherein the suction opening is located in an extension piece mounted at one edge of the table surface.

 5. The method according to Claim 1 wherein there is provided a
10 second suction opening, the second suction opening being at a location spaced from the bit opening and from the first suction opening.

 6. The method according to Claim 5 wherein the second suction opening is arranged substantially on a line from the axis of bit which line is at right angles to a line joining the first suction opening and the axis of the bit.

15 7. The method according to Claim 5 including mounting a guide fence on the table which guide fence has an opening at the bit wherein the first suction opening is located along the fence from the bit and the second suction opening is located behind the fence at a position generally at right angles to the fence.

20 8. The method according to Claim 5 wherein the workpiece is moved such that the passage is moved from the first suction opening to the second suction opening.

9. The method according to Claim 2 wherein the router motor has an end plate clamped to the opposite side of the table, wherein the suction opening is located in a position on the table which is outside of the area of the end plate of the router and wherein there is provided a suction head connected to the table for
5 connection of said suction source to the suction opening.

10. The method according to Claim 2 wherein the router motor has an end plate clamped to the opposite side of the table, wherein the suction opening is located in a position on the table which is inside of the area of the end plate of the router and wherein there is provided a duct formed in the end plate of the router
10 which connects to the suction source and to the suction opening.

11. The method according to Claim 10 wherein the duct formed in the end plate of the router is separated from a bit opening in the end plate.

12. The method according to Claim 10 wherein there is provided a second suction opening through the table from the work surface to an opposed side
15 of the table, the second suction opening being at a location spaced from the bit opening and from the first suction opening, the first and second suction openings being connected to the same duct formed in the end plate.

13. The method according to Claim 1 wherein the router motor has an end plate with an end plate at the router bit and lying in a radial plane of the axis
20 of rotation of the bit, the end plate defining said surface in contact with the workpiece, wherein the suction opening is located in the end plate and wherein there is provided a duct formed in the end plate of the router which connects to the suction source and to the suction opening.

14. The method according to Claim 13 wherein the end plate includes a portion thereof containing said suction opening which can rotate around the axis relative to the router motor so as to move the angular location of the suction opening around the axis relative to the router motor.

5 15. The method according to Claim 14 wherein the portion is annular and surrounds a fixed inner portion of the end plate.

16. The method according to Claim 14 wherein the portion includes raised guide members on the surface thereof for sliding of the portion relative to the workpiece.

10 17. The method according to Claim 14 including guiding rotation of the portion around the axis so as to locate the suction opening on a line along the direction of movement of the router bit relative to the workpiece so that the suction opening is located behind the bit.

15 18. The method according to Claim 17 wherein rotation of the portion is guided by providing engagement members on the surface thereof arranged to cause rotation of the portion by friction with the workpiece.

19. The method according to Claim 17 wherein rotation of the portion is guided by providing elongate guide ribs on the surface thereof arranged longitudinal of a line joining the suction opening to the router bit.

20 20. A combination of a router and a router table member comprising a router table member having a work surface over which a workpiece is to be moved;

a router connected at the table surface such that the router has a router bit driven by a router motor about a bit axis which is at right angles to the table surface;

a router bit opening through the table surface at the router bit;

5 a suction opening at the work surface of the table member extending from the work surface to a side of the table member opposite the work surface of the table, the suction opening being at a location spaced from the bit opening;

and a suction duct for connection to the suction opening on the opposed side of the table member so as to draw air and waste material through the
10 suction opening to the suction duct.

21. The combination according to Claim 20 wherein the suction opening is located in the table surface.

22. The combination according to Claim 20 wherein the suction opening is located in an extension piece mounted at one edge of the table surface.

15 23. The combination according to Claim 20 wherein there is provided a second suction opening through the table from the work surface to an opposed side of the table, the second suction opening being at a location spaced from the bit opening and from the first suction opening.

24. The combination according to Claim 20 wherein the router
20 motor has an end plate clamped to the opposite side of the table, wherein the suction opening is located in a position on the table which is outside of the area of the end plate of the router and wherein there is provided a suction head connected to the table for connection of said suction duct to the suction opening.

25. The combination according to Claim 20 wherein the router motor has an end plate clamped to the opposite side of the table, wherein the suction opening is located in a position on the table which is inside of the area of the end plate of the router and wherein there is provided a duct formed in the end plate
5 of the router which connects to the suction duct and to the suction opening.

26. A router comprising
a router body having an end plate;
a router motor mounted in the router body;
a router bit driven by the router motor about a bit axis which is at right
10 angles to an end surface of the end plate and arranged such that the router bit can project through a bit opening through the end plate;
and a suction duct in the end plate of the router body for connection to a suction opening end face so as to draw air and waste material through the suction opening to the suction duct
15 wherein the duct formed in the end plate of the router is arranged such that the duct is separated from the bit opening.

27. The router according to Claim 26 wherein the suction duct in the end plate is arranged such that it can also co-operate with a second suction opening through the end face, the second suction opening being at a location spaced from
20 the bit opening and from the first suction opening.

28. The router according to Claim 26 wherein the end plate includes a portion thereof containing said suction opening which can rotate around the axis

relative to the router motor so as to move the angular location of the suction opening around the axis relative to the router motor.

29. The router according to Claim 28 wherein the portion is annular and surrounds a fixed inner portion of the end plate.

5 30. The router according to Claim 28 wherein the portion includes raised guide members on the surface thereof for sliding of the portion relative to the workpiece.

31. The router according to Claim 14 including a guide member for guiding rotation of the portion around the axis so as to locate the suction opening on
10 a line along the direction of movement of the router bit relative to the workpiece so that the suction opening is located behind the bit.

32. The router according to Claim 17 wherein the guide member comprises one or more engagement members on the surface thereof arranged to cause rotation of the portion by friction with the workpiece.

15 33. The router according to Claim 17 wherein guide member comprises at least one elongate guide rib on the surface thereof arranged longitudinal of a line joining the suction opening to the router bit.

34. A router table insert plate comprising:

a plate having a work surface over which a workpiece is to be moved;

20 holes in the plate arranged for connection to an end plate of a router having a router bit driven by a router motor about a bit axis which is at right angles to the table surface;

a router bit opening through the plate arranged so as to be located at the router bit;

and a suction opening through the plate from the work surface to an opposed side of the table, the suction opening being at a location spaced from the bit opening, and being arranged for connection to a suction duct on the opposed side.

35. The plate according to Claim 34 wherein the suction opening is located in a position on the table which is outside of the area of the end plate of the router and including a suction duct attached to the plate and connected to the suction opening on the opposed side of the table so as to draw air and waste material through the suction opening to the suction duct.

36. The plate according to Claim 34 wherein there is provided a second suction opening through the table from the work surface to an opposed side of the table, the second suction opening being at a location spaced from the bit opening and from the first suction opening.

37. The plate according to Claim 34 wherein there is provided a second suction opening through the table from the work surface to an opposed side of the table, the second suction opening being at a location spaced from the bit opening and from the first suction opening, the first and second suction openings being connected to the suction duct by a housing attached on the opposed side of the plate.